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B6P PL4B

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WO 00/19394 A

US 4779911 A

(58) Field of Search

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(54) Abstract Title

A keyless padlock seal with pivoting hasp

(57) A keyless padlock security seal with a hasp 20 which pivots about an axis 13, connected to the body 1, from a open position, in which a free end 29 can be passed through a component to be secured, to a locked position. The hasp 20 is a U shape with two limbs 21, 22. One limb 21 is pivotally connected to the body 13, and the free end 29 of the other limb 22 is shaped such that in the locked position it is non-releasably retained in the body 1. The end 29 is locked in to the body by double-ended spring locking member 8. Locking tab 31 is spring urged around neck 30, the other longer end 14 is locked in to place by locking member 15 catching on lip 24 on the end of extension 14 of the hasp.

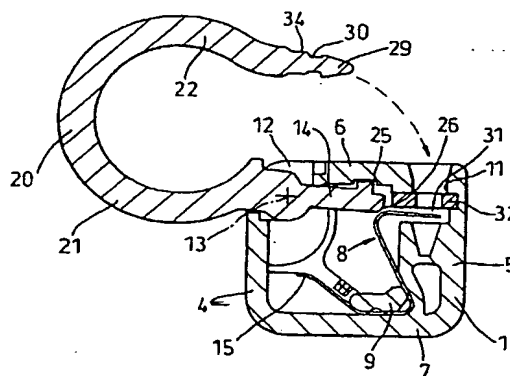


Fig. 2

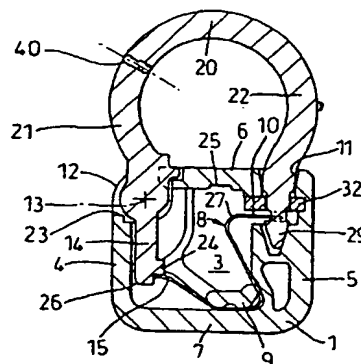


Fig. 3

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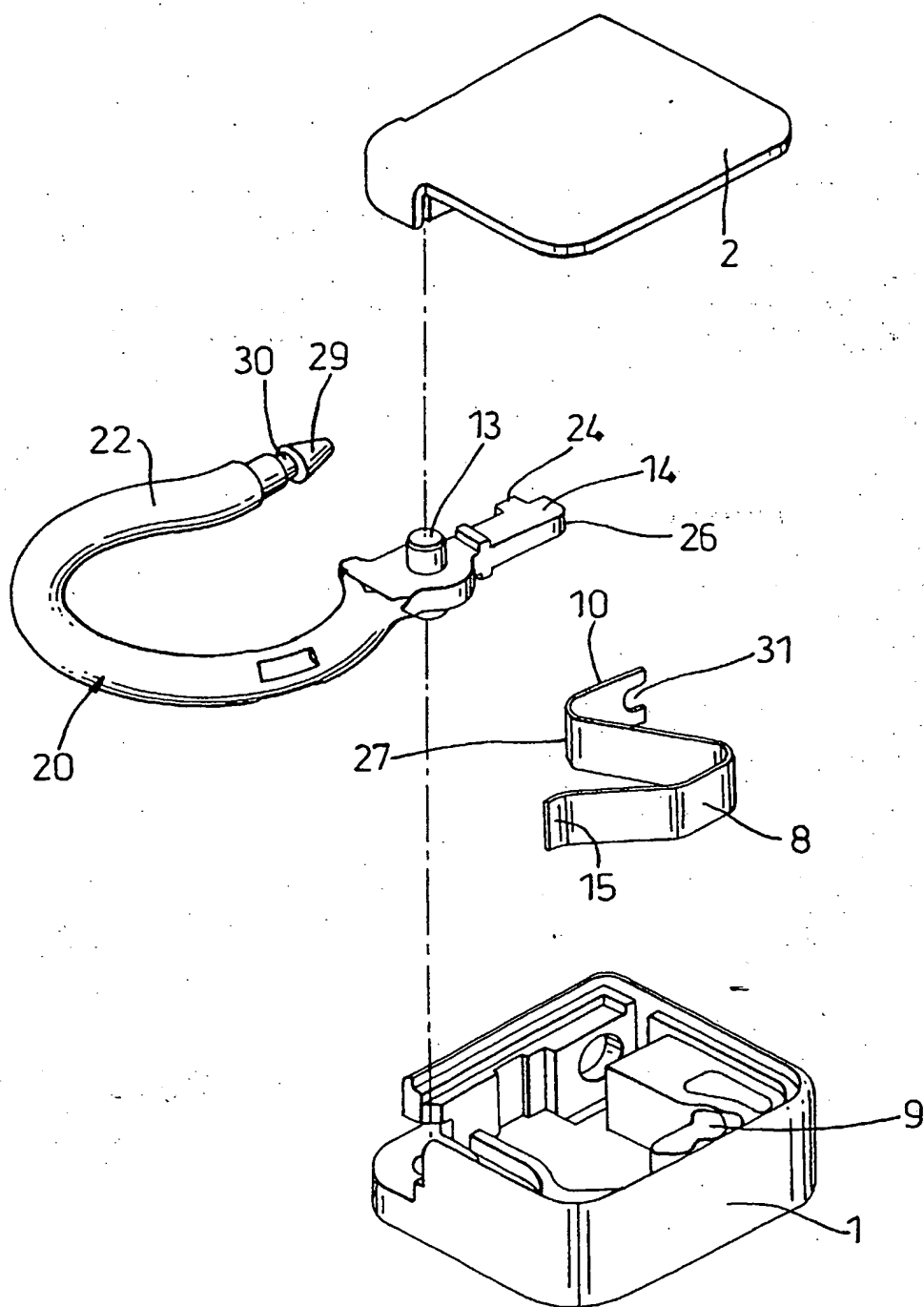


Fig. 1

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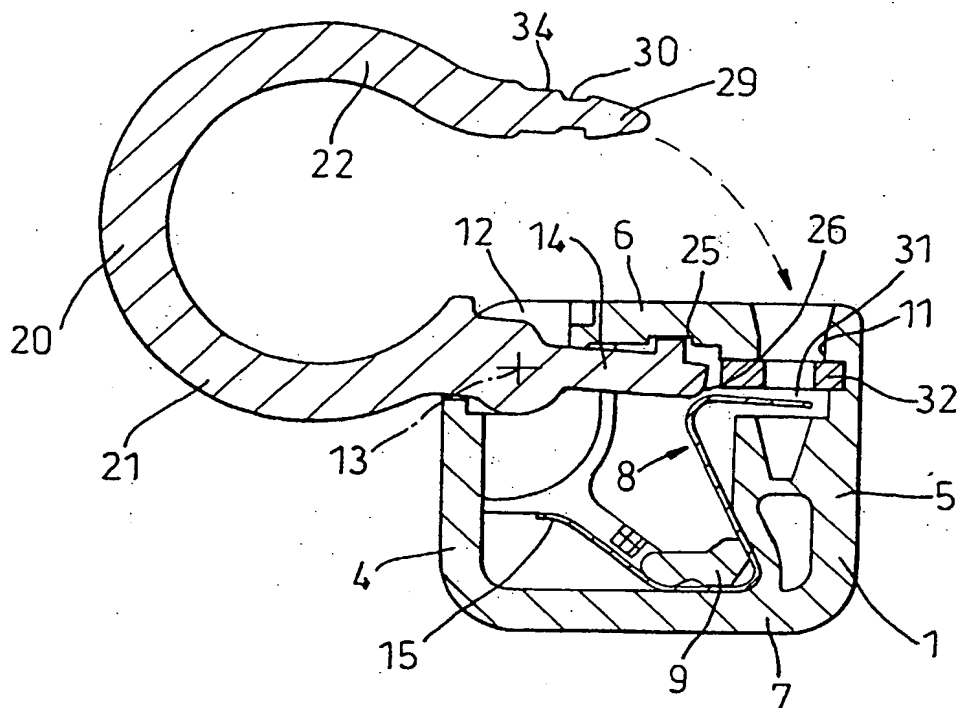


Fig. 2

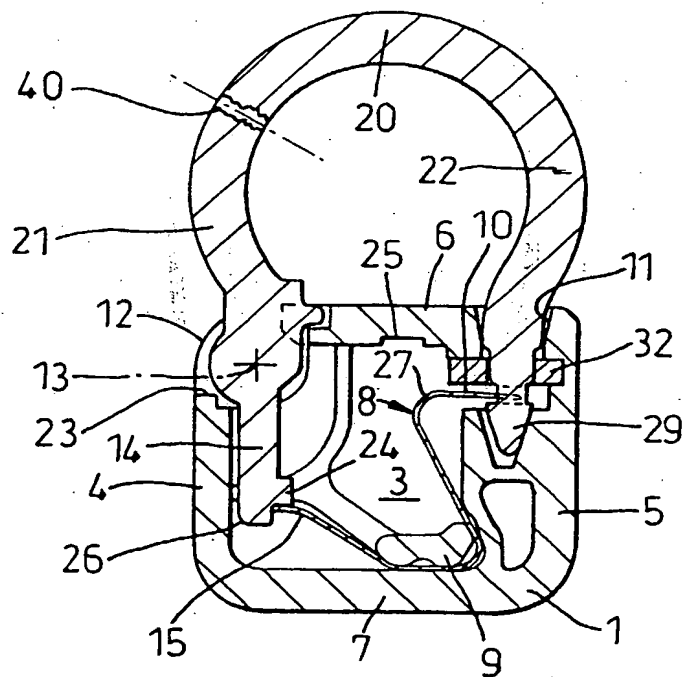


Fig. 3

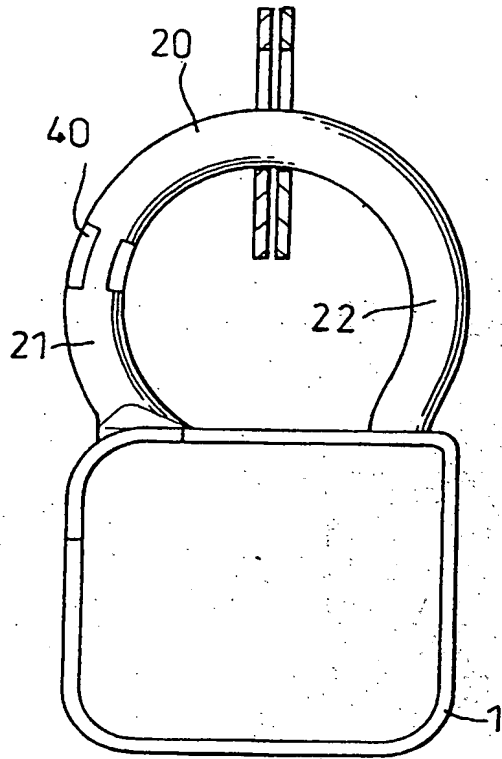


Fig. 4

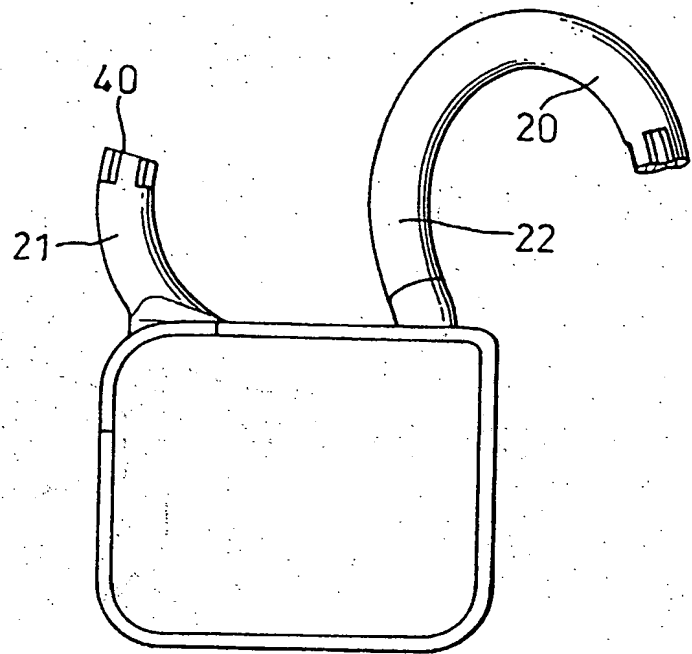


Fig. 5

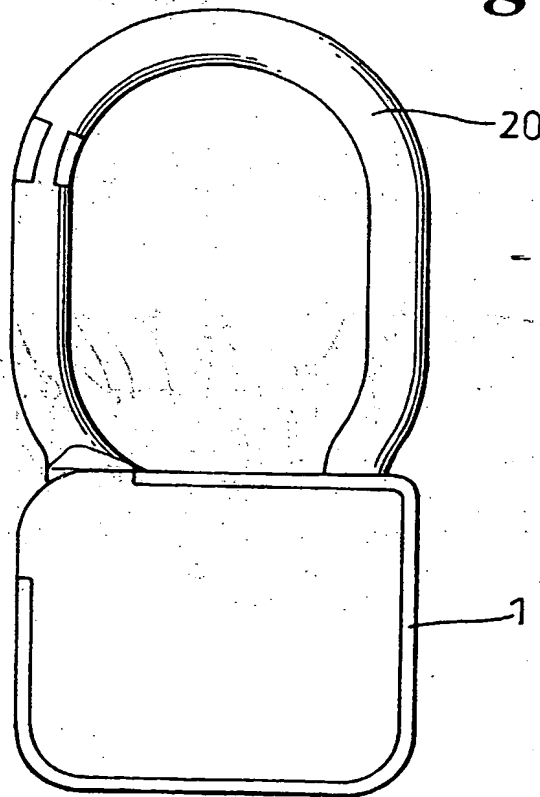


Fig. 6

KEYLESS PADLOCK SEAL

This invention relates to a keyless padlock security seal of the kind comprising a hasp moveable with respect to a body between the release position in which a free end portion can be passed through a component to be secured and a locked position in which the free end portion is locked
5 within the body and from which it cannot be released.

In known keyless padlock security seals of the kind set forth, such as disclosed in US patent numbers 3602538, 3966247, 4460203, and 4500124, the hasp is of U-outline comprising a pair of limbs adapted to be received in complimentary openings in the body and in which the limbs are slidably
10 received in the locked position with a locking member co-operating with the hasp to prevent it from being released, removal of the seal being achieved only by destroying the seal itself, suitably by cutting through the hasp.

According to our invention, in a keyless padlock security seal of the kind
15 set forth, the hasp comprises a member of generally U-outline having interconnected spaced first and second limbs, of which the first limb is pivotally connected to the body, and the free end of the second limb is adapted in the locked position to be non-releasably retained in an opening in the body by co-operation with a first non-releasable locking member, the
20 first limb is longer than the second limb, and includes an extension which enters into the body beyond the pivotal connection, the extension co-operating with a second non-releasable locking member spring urged into engagement with it.

This has the advantage of providing a "double-locking" feature in that both
25 limbs are locked against movement with respect to the body. Specifically, the first limb is locked against angular movement about the pivotal

connection, and the second limb is locked against withdrawal from the opening in which it is received.

Conveniently, the free end of the second limb is formed with a radial retaining groove into which the first locking member is spring urged into
5 non-releasable engagement.

The two locking members may comprise opposite ends of a double-locking blade spring, with each end being deflectable by passage of the respective limb as the hasp is moved angularly about the pivotal connection and into
10 the locked position to prevent movement of the hasp in the opposite direction.

The body may be constructed from a plastics material, suitably comprising a housing part with an open side closed by cover plate, a metal hasp pivotally mounted on a metal pin, and a metal blade spring located in a space defined between a wall of the housing part and an abutment.

15 One embodiment and a modification of our invention are illustrated in the accompanying drawings which:-

Figure 1 is an exploded perspective view of a keyless padlock security seal; with the seal in a release open position ready for use;

20 **Figure 2** is a longitudinal section through the seal with the seal in a release open position ready for use;

Figure 3 is a view similar to Figure 2, but showing the seal in a locked position;

Figure 4 is a plan of the seal as locked in position through a component;

25 **Figure 5** shows the hasp cut for seal removal; and

Figure 6 is a view similar to Figure 4, but showing a different hasp.

A keyless padlock security seal illustrated in Figures 1-5 of the accompanying drawings comprises a body of plastics construction consisting of a housing part 1 having an open side adapted to be closed by a plastics closure plate 2.

- 5 The housing part 1 is generally oblong-rectangular as shown in plan, and comprises an integral base 3, opposed side walls 4 and 5, and opposed end walls 6 and 7. A steel blade spring 8 of general Z outline is positioned in the housing part 1 being located in position within a gap defined between the inner-faces of the side and end walls 5 and 7 and an adjacent integral
- 10 abutment 9. One end portion 10 of the spring 8 is generally parallel to the end wall 6, and extends outwardly so that its free end extends beyond the centre of an opening 11 in a portion of the end wall 6 adjacent to the side wall 5. The free end of the other portion 15 extends towards the side wall 4.

- 15 An opening 12 extends through the corner of the housing part 1 through the material of the end wall 6 and the side wall 4 with opposite faces receiving opposite ends of a pivot pin 13 extending into the material of the housing part 1, and the cover plate 2.

- 20 A metal hasp 20 of generally "U" outline is mounted in the body. The hasp comprises interconnected spaced first and second limbs 21 and 22 of which the first limb 21 is longer than the second limb 22, and is pivotally connected to the pivot point 13 at an intermediate point of its length. The limb 21 includes an integral extension 14 which projects into the body 1 beyond pivot pin 13.

- 25 The hasp is angularly moved with respect to the body between a released open position as illustrated in Figure 2 of the drawings, and a locked position illustrated in Figure 3.

In the open position, the limb 21 of the hasp abuts against a shoulder 23 at the adjacent end of the slot 12 with a projection 24 on the opposite inner side of the extension 14 being received in a notch 25 in the inner-face of the end wall. An arcuate face 26 at the free end of the extension 14 opposite the projection 24 co-operates with an arcuate face 27 on the spring 8 by means of which the hasp is held in the release position as shown in Figure 2. In this position the limb 22 is generally parallel to the adjacent edge of the housing part 1 and a conical nose 29 integrally connected to the limb 22 by means of a neck 30 of reduced diameter is substantially normal to the opening 11.

The free end of the portion 10 of the spring 8 is formed with a notch 31 of a radius slightly larger than that of the neck 30.

When the seal is to be used to lock one or more members together, the limb 22 of the hasp is passed through complimentary openings in the member, and is then moved angularly about the pivot pin 13 as an axis so that the nose 29 enters the opening 11. During this movement, the arcuate face 26 deflects the spring 8 laterally by co-operation with the face 27. Further movement in the same direction causes the nose 29 to engage with the portion 10 so that the spring is deflected away from the end wall 5 until the neck 30 is located in the notch 31. During this movement, the nose 26 urges the portion 15 of the spring towards the end wall 7 in order to deflect it into position until the stored energy in the portion 15 urges the portion 15 to engage below the projection 24.

In this position the seal is "double-locked" since the engagement of the notch 31 with the neck 30 prevent the limb 22 from being withdrawn back through the opening 11, and engagement of the free end of the portion 15 behind the projection 24 prevents the extension 14 from being moved angularly about the pivot pin 13, since the free end of the portion 15 acts as a stop to engage with and prevent such angular movement.

An angular protrusion 32 of elastomeric material is located within the housing part with an opening co-axial with the opening 11. In the locked position, a cylindrical shank 34 on the inner side of the notch 31 is received in the opening to enclose the hasp 20 in the locked position and to prevent
5 removal of the cover 2.

To remove the seal, it is necessary to cut through the hasp 20. The hasp may conveniently be cut at a zone 40 located on the longer first limb 21 of the hasp. The limb 22 and the body 1 can then be relatively twisted about an axis passing through the neck 30 and shank 34 and into the position
10 illustrated in Figure 5 of the accompanying drawings.

In the modifications illustrated in Figure 6 of the drawing the hasp 20 may be elongated in a direction away from the body in order to increase the height of the hasp.

CLAIMS

1. A keyless padlock security seal of the kind set forth in which the hasp comprises a member of generally U-outline having interconnected spaced first and second limbs, of which the first limb is pivotally connected to the body, and the free end of the second limb is adapted in the locked position to be non-releasably retained in an opening in the body by co-operation with a first non-releasable locking member and in which the first limb is longer than the second limb, and includes an extension which enters into the body beyond the pivotal connection, the extension co-operating with the second non-releasable locking member spring urged into engagement with it.
2. A seal as claimed in claim 1, in which the free end of the second limb is formed with the radial retaining groove into which the first locking member is spring urged into non-releasable engagement.
3. A seal as claimed in claim 1 or claim 2, in which the two locking members comprise opposite ends of a double-locking blade spring, with each end being deflectable by passage of the respective limb as the hasp is moved angularly about the pivotal connection and into the locked position to prevent movement of the hasp in the opposite direction, the first limb beyond locked against angular movement about the pivotal connection, and the second limb being locked against withdrawal from the opening in which it is received.
4. A seal as claimed in any of the preceding claims in which the body comprises a housing part with an open side closed by a cover plate, a metal hasp pivotally mounted on a metal pivot pin, and a metal blade spring located in a space defined between a wall of the housing part and an abutment.

5. A seal as claimed in claim 4, in which the housing part and the cover plate are both constructed from a plastics material.

6. A keyless padlock security seal substantially as described herein with reference to and as illustrated in the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0118076.9
Claims searched: 1 - 6

Examiner: David P Maskery
Date of search: 9 November 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B6P (PL4B)

Int Cl (Ed.7): B65D 33/34, 55/14, G09F 3/03

Other: Online: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	WO 00/19394 A1 (KIENZLER) See Figs 1 and 2 and abstract	
A	US 4779911 (BROWN) See Figs 1 - 3 and column 2 lines 4 - 9	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Patent Abstracts of Japan

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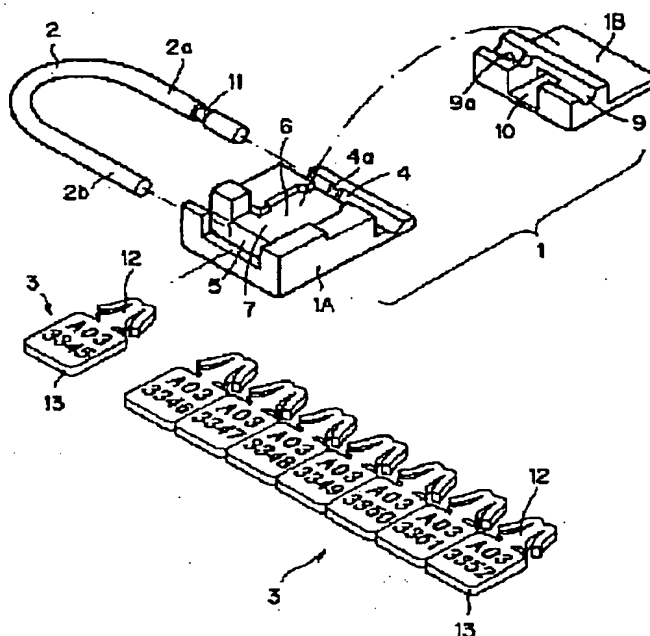
APPLICATION DATE : 16-12-98
 APPLICATION NUMBER : 10357818

APPLICANT : PIOLAX INC;

INVENTOR : NISHIYAMA NOBORU;

INT.CL. : B65D 33/34 E05B 39/02 E05B 67/36

TITLE : SEALING UTENSIL



ABSTRACT : PROBLEM TO BE SOLVED: To provide a reusable sealing utensil.

SOLUTION: This sealing utensil comprises a box-shaped body 1, an upside-down U-shaped arm 2 one end section 2a of which is rotatably supported to the body 1, and lock keys 3 for which elastic leg sections 12 and base plate sections 13 are breakably connected, and the body 1 has an open engaging groove 5 which is engaged with the other end section 2b of the arm 2, and an engaging hole 6 which is engaged with the elastic leg section 12 of the lock key 3, and by engaging the elastic leg section 12 of the lock key 3 with the engaging hole 6, the other end section 2b of the arm 2 can be locked in the engaging groove 5 of the body 1 by the base plate section 13 of the lock key 3, and by adopting such a constitution, at the time of unsealing, the lock key 3 only is cut off, and by replacing the lock key 3 with a new one, the sealing utensil itself becomes well reusable.

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